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الف) $\sqrt{\frac{x-1}{n}} - \frac{n}{n-1} \rightarrow \sqrt{\frac{x^2+1-2x-x^2}{n(n-1)}} \rightarrow \frac{1}{n-1} - \frac{1}{n} = \frac{1}{n(n-1)}$ $D_f = (-\infty, 0) \cup [\frac{1}{n}, +\infty)$

ب) $\frac{x-2n-2}{n(n+1)} = -n-2 \rightarrow \frac{-n-2}{n(n+1)} \rightarrow \frac{-n-2}{n(n+1)} = \frac{-n-2}{n(n+1)}$ $D_f = \mathbb{R} - \{-2, -\frac{2}{n}\}$

الف) $\sqrt{((\frac{1}{n})^n - 9)(3-4^n)} \rightarrow \frac{a}{r}$ $D_f = (-\infty, -2) \cup (\frac{a}{r} + \infty)$

ب) $\sqrt[n]{n-1} + \sqrt[n]{y+1} = 3 \rightarrow n-1 \geq 0 \rightarrow n \geq 1$ $D_f = [1, 12]$
 $\sqrt[n]{y+1} = 3 - \sqrt[n]{n-1} \rightarrow 3 - \sqrt[n]{n-1} \geq 0 \rightarrow (3 - \sqrt[n]{n-1})^n \rightarrow n \leq 12$

$x^2 - n - 2 > 0 \rightarrow \frac{-1}{n-2} < \frac{2}{n+1}$ $D_f = (-\infty, -1) \cup (2, +\infty)$

$x^2 - 1 \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \geq 1$
 $x \leq -1$

if $n = -2 \rightarrow 3 - 2a - 4 = 0 \rightarrow -1 = 2a \rightarrow a = -\frac{1}{2}$

$3 - \frac{1}{n} - n^2 = 0 \rightarrow -n^2 - n + 3 = 0 \rightarrow n^2 + n - 3 = 0 \rightarrow (n-1)(n+3) = 0$
 $a + b = -\frac{1}{n} + \frac{3}{n} = \frac{2}{n}$ $D_f = [-3, 1]$

$g(x) = \begin{cases} 2n-2 & n \geq 1 \\ n+3 & n < 1 \end{cases} \rightarrow \begin{cases} 2n-2 \geq 1 \\ n+3 \geq 0 \end{cases} \rightarrow \begin{cases} n \geq 1 \\ n \geq -3 \end{cases}$

$D_f = [1, +\infty)$

$f\left(\frac{\sin \frac{\pi}{w} + \cos \pi x}{\sqrt{w} + 1}\right)$ $\frac{v + \cancel{e\sqrt{w}} - \cancel{e\sqrt{w}} - 1}{r} = \frac{-1}{r}$ $r\left(\frac{\sqrt{w} + 1}{r}\right)^r = \frac{r}{r}\left(\frac{\sqrt{w} + 1}{r}\right)$ $r\left(\frac{1 + \sqrt{w}}{r}\right) = r\sqrt{w} - r$	6
$f\left(\frac{a+1}{a-1}\right) = a \rightarrow \frac{a+1+a-1}{a-1} = a \rightarrow \frac{2a}{r} = a$ $a \in \mathbb{R} - \{1\}$ برای تمام مقادیر a جز 1	7
$g(a) \rightarrow \sqrt{a^r - 1} \quad f(\sqrt{a^r - 1}) = -r$ $\left(\frac{\sqrt{a^r - 1}}{t}\right)^r - r\sqrt{a^r - 1} + r = 0$ $t^r - r^r t + r = 0 \rightarrow (t^r)^r = 0 \rightarrow t = r = \sqrt{a^r - 1}$ $a^r - 1 = r^r$ $a^r = r^r + 1$	8
$f(x) \rightarrow 1 - \omega + y \rightarrow r$ $f(-r) \rightarrow r^r + r^r + y \rightarrow r^r$ $r^r \times r = r^r$	9
$t \cos x + \omega \cos x = \frac{r}{1} \omega \rightarrow t \cos x + \omega \cos x - \frac{r}{r} = 0$ $\tan^2 40 \rightarrow r$ $\cos x = \frac{1}{r} \rightarrow x = 40^\circ$ $\cos x + \omega \cos x - 1/r = 0$ $(\cos x + r)(\cos x - r) = 0$ $\cos x = \frac{r}{r}$	10